ABSTRACT

A device for controlling the velocity of an electric motor is provided. The device combines a traditional PI (Proportional + Integral) velocity controller with a robust mapping technique that estimates the velocity of the motor. The mapping technique is based on fuzzy logic methods, and provides a robust estimate of the motor's rotational velocity by using the motor current measurement and pulse-width modulated (PWM) voltage being applied to the motor. In one embodiment the device is combined with a calibration technique which ensures the proper calibration of the motor.